



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.                                                             | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/054,179                                                                  | 01/17/2002  | William R. Wheeler   | 10559-607001/P12891 | 4487             |
| 7590                                                                        | 10/05/2004  |                      | EXAMINER            |                  |
| FISH & RICHARDSON, PC<br>4350 LA JOLLA VILLAGE DRIVE<br>SAN DIEGO, CA 92122 |             |                      | THOMPSON, ANNETTE M |                  |
|                                                                             |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                             |             |                      | 2825                |                  |

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED  
OCT 19 2004  
TECHNOLOGY CENTER 2800

|                              |                            |                     |  |
|------------------------------|----------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b>     | <b>Applicant(s)</b> |  |
|                              | 10/054,179                 | WHEELER ET AL.      |  |
|                              | Examiner<br>A. M. Thompson | Art Unit<br>2825    |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 17 January 2002.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-30 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 17 January 2002 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

|                                                                                                                                                           |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                                      | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>06/11/2003; 03/15/2004</u> | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

This application 10/054,179 has been examined. Claims 1-30 are pending.

### ***Drawings***

1. The drawings are objected to because Figures 1-4 have poor/illegible figure and line clarity. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 9 and 30 are objected to because of the following informalities: Pursuant to claim 9, the claim preamble should state the intended use or purpose of the

invention. Pursuant to claim 30, this claim should depend from claim 29. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Rejection of claims 1-30**

4. Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Watkins et al., U.S. Patent 5,220,512. Watkins discloses a system for simultaneous, interactive presentation of electronic circuit diagrams and simulation data.

5. Pursuant to claims 1, 9, 11, 19, 21, 29, Watkins discloses a method (c1, c9), article comprising a machine-readable medium (c11, c19), and apparatus (c21, c29) for modeling a logic design (Abstract, Figs. 1, 2; col. 8, ll. 10-48), comprising creating a graphical representation of the logic design (col. 5, ll. 26-44); generating simulation code based on the graphical representation (col. 5, ll. 26-44; col. 5, line 59 to col. 6, line 13).

6. Pursuant to claims 2, 12, and 22, wherein the graphical representation is comprised of functional block diagrams and virtual wires that interconnect the functional block diagrams (Fig. 3; col. 5, ll. 26-43).

7. Pursuant to claims 3, 13, 23 wherein creating comprises retrieving the functional block diagrams from a database and arranging the functional block diagrams and the virtual wires to model the logic design (col. 5, ll. 45-58).
8. Pursuant to claims 4, 14, 24, wherein creating comprises defining the functional block diagrams and the virtual wires to model the logic design (col. 8, ll. 10-35).
9. Pursuant to claims 5, 15, 25, further comprising displaying a menu comprised of different types of functional block diagrams (col. 5, ll. 21-24); receiving an input selecting one of the different types of functional block diagrams; retrieving a selected functional block diagram; and creating the graphical representation of the logic design using the selected functional block diagram (col. 5, ll. 26-40).
10. Pursuant to claims 6, 16, 26 further comprising propagating a state through the simulation code (col. 5, ll. 1-13); and determining if there is an error in the logic design based on the propagated state (col. 6, ll. 2-35).
11. Pursuant to claims 7, 17, and 27, wherein the state comprises one of a zero, one and an undefined state (Fig. 4, state table).
12. Pursuant to claim 8, 18, and 28, further comprising providing a visual indication if there is an error in the graphical representation of the logic design (col. 6, ll. 2-6; col. 9, ll. 45-57).
13. Pursuant to claims 10, 20, and 30, further comprising generating simulation code to simulate the operation of the logic design; and testing the logic design by propagating one or more states through the simulation code (col. 6, ll. 6-35; col. 7, ll. 3-47).

***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please reference the PTO-892 for a complete listing.
15. Any inquiry concerning this communication or earlier communications should be directed to Examiner A.M. Thompson whose telephone number is (571) 272-1909. The Examiner can usually be reached Monday thru Friday from 8:00 a.m. to 4:30 p.m..

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

16. Responses to this action should be mailed to the appropriate mail stop:

Mail Stop \_\_\_\_\_

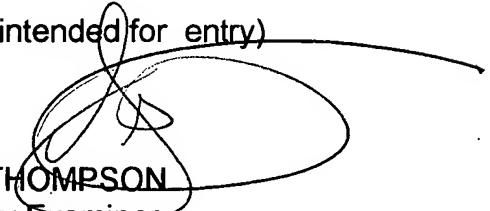
Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306, (for all OFFICIAL communications intended for entry)

  
A. M. THOMPSON  
Primary Examiner  
Technology Center 2800

|                                   |  |  |                            |                                                           |             |
|-----------------------------------|--|--|----------------------------|-----------------------------------------------------------|-------------|
| <b>Notice of References Cited</b> |  |  | Application/Control No.    | Applicant(s)/Patent Under Reexamination<br>WHEELER ET AL. |             |
|                                   |  |  | Examiner<br>A. M. Thompson | Art Unit<br>2825                                          | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Name             | Classification |
|---|---|--------------------------------------------------|-----------------|------------------|----------------|
|   | A | US-5,629,857                                     | 05-1997         | Brennan          | 716/11         |
|   | B | US-5,220,512                                     | 06-1993         | Watkins et al.   | 716/11         |
|   | C | US-6,366,874                                     | 04-2002         | Lee et al.       | 703/14         |
|   | D | US-6,117,183                                     | 09-2000         | Teranishi et al. | 716/11         |
|   | E | US-6,272,671                                     | 08-2001         | Fakhry           | 716/18         |
|   | F | US-5,852,564                                     | 12-1998         | King et al.      | 703/14         |
|   | G | US-6,684,379                                     | 01-2004         | Skoll et al.     | 716/11         |
|   | H | US-                                              |                 |                  |                |
|   | I | US-                                              |                 |                  |                |
|   | J | US-                                              |                 |                  |                |
|   | K | US-                                              |                 |                  |                |
|   | L | US-                                              |                 |                  |                |
|   | M | US-                                              |                 |                  |                |

**FOREIGN PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Country | Name | Classification |
|---|---|--------------------------------------------------|-----------------|---------|------|----------------|
|   | N |                                                  |                 |         |      |                |
|   | O |                                                  |                 |         |      |                |
|   | P |                                                  |                 |         |      |                |
|   | Q |                                                  |                 |         |      |                |
|   | R |                                                  |                 |         |      |                |
|   | S |                                                  |                 |         |      |                |
|   | T |                                                  |                 |         |      |                |

**NON-PATENT DOCUMENTS**

| * |   | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|-------------------------------------------------------------------------------------------|
|   | U |                                                                                           |
|   | V |                                                                                           |
|   | W |                                                                                           |
|   | X |                                                                                           |

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

|                                                                                                                       |                                                            |                                                    |                                 |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------|---------------------------------|
| Substitute Form PTO-1449<br>(Modified)                                                                                | U.S. Department of Commerce<br>Patent and Trademark Office | Attorney's Docket No.<br>10559-607001 ✓            | Application No.<br>10/054,179 ✓ |
| <b>Information Disclosure Statement</b><br>by Applicant<br>(Use several sheets if necessary)<br><br>(37 CFR §1.98(b)) |                                                            | ✓<br>Applicant<br>William R. Wheeler et al.        |                                 |
|                                                                                                                       |                                                            | Filing Date<br>JUN 11 2003 ✓<br>January 17, 2002 ✓ | Group Art Unit<br>2123 ✓ 2825   |

**U.S. Patent Documents**

| Examiner Initial | Desig. ID | Document Number | Publication Date | Patentee          | Class | Subclass | Filing Date If Appropriate |
|------------------|-----------|-----------------|------------------|-------------------|-------|----------|----------------------------|
|                  | AA        | 2002/0049957    | 04/2002          | Hosono et al.     |       |          | RECEIVED                   |
|                  | AB        | 6,233,723       | 05/2001          | Pribetich         |       |          | JUN 12 2003                |
|                  | AC        | 5,828,581       | 10/1998          | Matumura          |       |          |                            |
|                  | AD        | 2001/0018758    | 08/2001          | Tanaka et al.     |       |          | Technology Center 2100     |
|                  | AE        | 5,666,289       | 09/1997          | Watkins           |       |          |                            |
|                  | AF        | 6,066,179       | 05/2000          | Allan             |       |          |                            |
|                  | AG        | 5,892,678       | 04/1999          | Tokunoh et al.    |       |          |                            |
|                  | AH        | 6,120,549       | 09/2000          | Goslin et al.     |       |          |                            |
|                  | AI        | 5,513,119       | 04/1996          | Moore et al.      |       |          |                            |
|                  | AJ        | 6,477,683       | 11/2002          | Killian et al.    |       |          |                            |
|                  | AK        | 6,505,341       | 01/2003          | Harris et al.     |       |          |                            |
|                  | AL        | 2003/0005396    | 01/2003          | Chen et al.       |       |          |                            |
|                  | AM        | 5,553,002       | 09/1996          | Dangelo et al.    |       |          |                            |
|                  | AN        | 6,366,874       | 04/2002          | Lee et al.        |       |          |                            |
|                  | AO        | 6,044,211       | 03/2000          | Jain              |       |          |                            |
|                  | AP        | 5,258,919       | 11/1993          | Yamanouchi et al. |       |          |                            |
|                  | AQ        | 5,220,512       | 06/1993          | Watkins et al.    |       |          |                            |
|                  | AR        | 6,324,678       | 11/2001          | Dangelo et al.    |       |          |                            |
|                  | AS        | 6,236,956       | 05/2001          | Mantooth et al.   |       |          |                            |
|                  | AT        | 6,132,109       | 10/2000          | Gregory et al.    |       |          |                            |
|                  | AU        | 5,963,724       | 10/1999          | Mantooth et al.   |       |          |                            |
|                  | AV        | 5,852,564       | 12/1998          | King et al.       |       |          |                            |
|                  | AW        | 6,106,568       | 08/2000          | Beausang et al.   |       |          |                            |
|                  | AX        | 6,219,822       | 04/2001          | Griestede et al.  |       |          |                            |
|                  | AY        | 5,128,871       | 07/1992          | Schmitz           |       |          |                            |
|                  | AZ        | 5,506,788       | 04/1996          | Cheng et al.      |       |          |                            |
|                  | AAA       | 6,457,164       | 09/2002          | Hwang et al.      |       |          |                            |

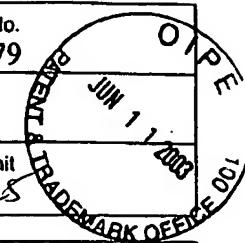
|                                                                                                                                                                              |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Examiner Signature                                                                                                                                                           | Date Considered |
| EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |                 |

|                                                                                               |                                                            |                                               |                                                                                 |
|-----------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------|
| Substitute Form PTO-1449<br>(Modified)                                                        | U.S. Department of Commerce<br>Patent and Trademark Office | Attorney's Docket No.<br><b>10559-607001</b>  | Application No.<br><b>10/054,179</b>                                            |
| <b>Information Disclosure Statement<br/>by Applicant</b><br>(Use several sheets if necessary) |                                                            | Applicant<br><b>William R. Wheeler et al.</b> | JUN 1 2003<br>2123<br>2876<br>RECEIVED<br>JUN 12 2003<br>Technology Center 2100 |
| (37 CFR §1.98(b))                                                                             |                                                            | Filing Date<br><b>January 17, 2002</b>        |                                                                                 |

| <b>U.S. Patent Documents</b> |           |                 |                  |                     |       |          |                            |
|------------------------------|-----------|-----------------|------------------|---------------------|-------|----------|----------------------------|
| Examiner Initial             | Desig. ID | Document Number | Publication Date | Patentee            | Class | Subclass | Filing Date If Appropriate |
|                              | ABB       | 2002/0042904    | 04/2002          | Ito et al.          |       |          |                            |
|                              | ACC       | 6,449,762       | 09/2002          | McElvain            |       |          | RECEIVED                   |
|                              | ADD       | 6,378,115       | 04/2002          | Sakurai             |       |          | JUN 12 2003                |
|                              | AEE       | 6,272,671       | 08/2001          | Fakhry              |       |          |                            |
|                              | AFF       | 6,260,179       | 07/2001          | Ohsawa et al.       |       |          | Technology Center 2100     |
|                              | AGG       | 6,117,183       | 09/2000          | Teranishi et al.    |       |          |                            |
|                              | AHH       | 5,889,677       | 03/1999          | Yasuda et al.       |       |          |                            |
|                              | AII       | 6,298,468       | 10/2001          | Zhen                |       |          |                            |
|                              | AJJ       | 6,477,689       | 11/2002          | Mandell et al.      |       |          |                            |
|                              | AKK       | 6,480,985       | 11/2002          | Reynolds et al.     |       |          |                            |
|                              | ALL       | 6,519,755       | 02/2003          | Anderson            |       |          |                            |
|                              | AMM       | 6,152,612       | 11/2000          | Liao et al.         |       |          |                            |
|                              | ANN       | 2002/0023256    | 02/2002          | Seawright           |       |          |                            |
|                              | AOO       | 6,053,947       | 04/2000          | Parson              |       |          |                            |
|                              | APP       | 6,135,647       | 10/2000          | Balakrishnan et al. |       |          |                            |
|                              | AQQ       | 2003/0016246    | 01/2003          | Singh               |       |          |                            |
|                              | ARR       | 2003/0016206    | 01/2003          | Taitel              |       |          |                            |
|                              | ASS       | 6,233,540       | 05/2001          | Schaumont et al.    |       |          |                            |
|                              | ATT       | 6,487,698       | 11/2002          | Andreev et al.      |       |          |                            |
|                              | AUU       | 6,311,309       | 10/30/2001       | Southgate           |       |          |                            |
|                              | AVV       | 2002/0166100    | 11-2002          | Meding              |       |          |                            |
|                              | AWW       | US 5,629,857    | 05-1997          | Brennan             |       |          |                            |
|                              | AXX       | 2002/0046386    | 04-2002          | Skoll et al.        |       |          |                            |
|                              | AYY       | 6,401,230       | 06/2002          | Ahanessians et al.  |       |          |                            |
|                              | AZZ       | 5,933,356       | 08/1999          | Rostoker et al.     |       |          |                            |
|                              | AAAA      | 6,205,573       | 03/2001          | Hasegawa            |       |          |                            |
|                              | ABBB      |                 |                  |                     |       |          |                            |

|                                                                                                                                                                              |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Examiner Signature                                                                                                                                                           | Date Considered |
| EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |                 |

|                                                                                                                        |  |                                                                                         |  |                                              |                                      |
|------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------|--|----------------------------------------------|--------------------------------------|
| Substitute Form PTO-1449<br>(Modified)                                                                                 |  | U.S. Department of Commerce<br>Patent and Trademark Office                              |  | Attorney's Docket No.<br><b>10559-607001</b> | Application No.<br><b>10/054,179</b> |
| <b>Information Disclosure Statement<br/>by Applicant</b><br>(Use several sheets if necessary)<br><br>(37 CFR §1.98(b)) |  | Applicant<br><b>William R. Wheeler et al.</b><br>Filing Date<br><b>January 17, 2002</b> |  |                                              |                                      |
|                                                                                                                        |  |                                                                                         |  | Group Art Unit<br><b>2123 2825</b>           |                                      |



| <b>U.S. Patent Documents</b> |           |                 |                  |          |       |          |                            |
|------------------------------|-----------|-----------------|------------------|----------|-------|----------|----------------------------|
| Examiner Initial             | Desig. ID | Document Number | Publication Date | Patentee | Class | Subclass | Filing Date If Appropriate |
|                              | ACCC      |                 |                  |          |       |          |                            |

| <b>Foreign Patent Documents or Published Foreign Patent Applications</b> |           |                 |                  |                          |       |          |             |    |
|--------------------------------------------------------------------------|-----------|-----------------|------------------|--------------------------|-------|----------|-------------|----|
| Examiner Initial                                                         | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation |    |
|                                                                          |           |                 |                  |                          |       |          | Yes         | No |
|                                                                          | ADDD      |                 |                  |                          |       |          |             |    |
|                                                                          | AEEE      |                 |                  |                          |       |          |             |    |
|                                                                          | AFFF      |                 |                  |                          |       |          |             |    |

| <b>Other Documents (include Author, Title, Date, and Place of Publication)</b> |           |                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Examiner Initial                                                               | Desig. ID | Document                                                                                                                                                                                                                                                                   |
|                                                                                | AGGG      | Foley et al., "An Object Based Graphical User Interface for Power Systems", IEEE Transactions on Power Systems, Vol. 8, No. 1, February 1993, pp. 97-104.                                                                                                                  |
|                                                                                | AHHH      | Pedram et al., "Floorplanning with Pin assignment", 1990 IEEE International Conference on Computer-Aided Design, 11 November 1990, pp. 98-101.                                                                                                                             |
|                                                                                | AIII      | Renoir, HDL Design Datasheet, Mentor Graphics, 1-8, 1999.                                                                                                                                                                                                                  |
|                                                                                | AJJJ      | Mentor Graphics Corporation, Renoir™ With HDL2Graphics™, pp. 1-6, 1998, Oregon.                                                                                                                                                                                            |
|                                                                                | AKKK      | Mentor Graphics Corporation, Renoir HDL Design Datasheet, pp. 1-2, 1999, Oregon.                                                                                                                                                                                           |
|                                                                                | ALLL      | Computer Design, "AFTER HARD KNOCKS, CYCLE-BASED SIMULATORS STAND THEIR GROUND". <a href="http://www.computer-design.com/Editorial/1996/10/ASIC/after.html">http://www.computer-design.com/Editorial/1996/10/ASIC/after.html</a> , accessed on August 23, 2001, pages 1-5. |
|                                                                                | AMMM      |                                                                                                                                                                                                                                                                            |
|                                                                                | ANNN      |                                                                                                                                                                                                                                                                            |
|                                                                                | AOOO      |                                                                                                                                                                                                                                                                            |

RECEIVED

JUN 12 2003

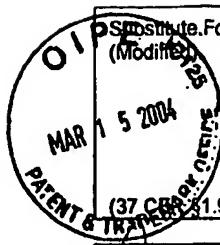
Technology Center 2100

|                                                                                                                                                                               |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Examiner Signature                                                                                                                                                            | Date Considered |
| EXAMINER'S Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |                 |

|                                                                                                                                                       |  |                                                            |  |                                                                                                   |                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------|--------------------------------------|
| Substitute Form PTO-1449<br>(Modified)                                                                                                                |  | U.S. Department of Commerce<br>Patent and Trademark Office |  | Attorney's Docket No.<br><b>10559-607001</b>                                                      | Application No.<br><b>10/054,179</b> |
| <b>Information Disclosure Statement</b><br><b>by Applicant</b><br><small>(Use several sheets if necessary)</small><br><small>(37 CFR 1.98(b))</small> |  | <b>Applicant</b><br><b>William R. Wheeler et al.</b>       |  | <b>MAR 17 2004</b><br><b>RECEIVED</b><br><b>MAR 17 2004</b><br><b>2123 Technology Center 2100</b> |                                      |
|                                                                                                                                                       |  | Filing Date<br><b>January 17, 2002</b>                     |  | Group Art Unit<br><b>2123</b>                                                                     | <i>2825</i>                          |

| <b>U.S. Patent Documents</b> |           |                 |                  |                      |       |          |                            |
|------------------------------|-----------|-----------------|------------------|----------------------|-------|----------|----------------------------|
| Examiner Initial             | Desig. ID | Document Number | Publication Date | Patentee             | Class | Subclass | Filing Date If Appropriate |
|                              | AA        | RE 38,059       | 04/2003          | Yano, et al.         |       |          |                            |
|                              | AB        | 4,703,435       | 10/1987          | Darringer, et al.    |       |          |                            |
|                              | AC        | 4,970,664       | 11/1990          | Kaiser, et al.       |       |          |                            |
|                              | AD        | 5,212,650       | 05/1993          | Hooper, et al.       |       |          |                            |
|                              | AE        | 5,267,175       | 11/1993          | Hooper               |       |          |                            |
|                              | AF        | 5,278,769       | 01/1994          | Bair, et al.         |       |          |                            |
|                              | AG        | 5,287,289       | 02/1994          | Kageyama, et al.     |       |          |                            |
|                              | AH        | 5,297,053       | 03/1994          | Pease, et al.        |       |          |                            |
|                              | AI        | 5,301,318       | 04/1994          | Mittal               |       |          |                            |
|                              | AJ        | 5,384,710       | 01/1995          | Lam, et al.          |       |          |                            |
|                              | AK        | 5,475,605       | 12/1995          | Lin                  |       |          |                            |
|                              | AL        | 5,493,507       | 02/1996          | Shinde, et al.       |       |          |                            |
|                              | AM        | 5,544,067       | 08/1996          | Rostoker, et al.     |       |          |                            |
|                              | AN        | 5,568,397       | 10/1996          | Yamashita, et al.    |       |          |                            |
|                              | AO        | 5,598,347       | 01/1997          | Iwasaki              |       |          |                            |
|                              | AP        | 5,603,015       | 02/1997          | Kurosawa, et al.     |       |          |                            |
|                              | AQ        | 5,604,894       | 02/1997          | Pickens, et al.      |       |          |                            |
|                              | AR        | 5,663,662       | 09/1997          | Kurosawa             |       |          |                            |
|                              | AS        | 5,673,198       | 09/1997          | Lawman, et al.       |       |          |                            |
|                              | AT        | 5,685,006       | 11/1997          | Shiraishi            |       |          |                            |
|                              | AU        | 5,694,579       | 12/1997          | Razdan, et al.       |       |          |                            |
|                              | AV        | 5,706,476       | 01/1998          | Giramma              |       |          |                            |
|                              | AW        | 5,717,928       | 02/1998          | Campmas, et al.      |       |          |                            |
|                              | AX        | 5,724,250       | 03/1998          | Kerzman, et al.      |       |          |                            |
|                              | AY        | 5,757,655       | 05/1998          | Shih, et al.         |       |          |                            |
|                              | AZ        | 5,809,283       | 09/1998          | Vaidyanathan, et al. |       |          |                            |
|                              | AAA       | 5,831,869       | 11/1998          | Ellis, et al.        |       |          |                            |

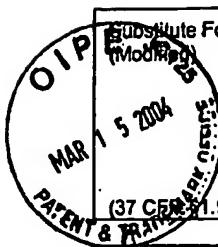
|                                                                                                                                                                                 |                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Examiner Signature                                                                                                                                                              | Date Considered<br><i>29-Sept-2004</i> |
| EXAMINER: Initials of citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |                                        |



|                                                                                       |  |                                                            |                                       |                               |
|---------------------------------------------------------------------------------------|--|------------------------------------------------------------|---------------------------------------|-------------------------------|
| Substitute Form PTO-1449<br>(Modified)                                                |  | U.S. Department of Commerce<br>Patent and Trademark Office | Attorney's Docket No.<br>10559-607001 | Application No.<br>10/054,179 |
| Information Disclosure Statement<br>by Applicant<br>(Use several sheets if necessary) |  | Applicant<br>William R. Wheeler et al.                     | RECEIVED<br>MAR 17 2004               |                               |
|                                                                                       |  | Filing Date<br>January 17, 2002                            | Group Art Unit<br>2123                | Technology Center 210         |

| U.S. Patent Documents |           |                 |                  |                   |       |          |                            |
|-----------------------|-----------|-----------------|------------------|-------------------|-------|----------|----------------------------|
| Examiner Initial      | Desig. ID | Document Number | Publication Date | Patentee          | Class | Subclass | Filing Date If Appropriate |
| XJ                    | ABB       | 5,841,663       | 11/1998          | Sharma, et al.    |       |          |                            |
|                       | ACC       | 5,892,682       | 04/1999          | Hasley, et al.    |       |          |                            |
|                       | ADD       | 5,903,469       | 05/1999          | Ho                |       |          |                            |
|                       | AEE       | 5,937,190       | 08/1999          | Gregory, et al.   |       |          |                            |
|                       | AFF       | 5,974,242       | 10/1999          | Damarla, et al.   |       |          |                            |
|                       | AGG       | 6,077,304       | 06/2000          | Kasuya            |       |          |                            |
|                       | AHH       | 6,161,211       | 12/2000          | Southgate         |       |          |                            |
|                       | AII       | 6,178,541       | 01/2001          | Joly, et al.      |       |          |                            |
|                       | AJJ       | 6,208,954       | 03/2001          | Houtchens         |       |          |                            |
|                       | AKK       | 6,216,256       | 04/2001          | Inoue, et al.     |       |          |                            |
|                       | ALL       | 6,226,780       | 05/2001          | Bahra, et al.     |       |          |                            |
|                       | AMM       | 6,234,658       | 05/2001          | Houldsworth       |       |          |                            |
|                       | ANN       | 6,275,973       | 08/2001          | Wein              |       |          |                            |
|                       | AOO       | 6,292,931       | 09/2001          | Dupenloup         |       |          |                            |
|                       | APP       | 6,327,693       | 12/2001          | Cheng, et al.     |       |          |                            |
|                       | AQQ       | 6,353,806       | 03/2002          | Gehlot            |       |          |                            |
|                       | ARR       | 6,353,915       | 03/2002          | Deal, et al.      |       |          |                            |
|                       | ASS       | 6,360,356       | 03/2002          | Eng               |       |          |                            |
|                       | ATT       | 6,381,563       | 04/2002          | O'Riordan, et al. |       |          |                            |
|                       | AUU       | 6,381,565       | 04/2002          | Nakamura          |       |          |                            |
|                       | AVV       | 6,421,816       | 07/2002          | Ishikura          |       |          |                            |
|                       | AWW       | 6,438,729       | 08/2002          | Ho                |       |          |                            |
|                       | AXX       | 6,438,731       | 08/2002          | Segal             |       |          |                            |
|                       | AYY       | 6,440,780       | 08/2002          | Kimura, et al.    |       |          |                            |
|                       | AZZ       | 6,473,885       | 10/2002          | Wallace           |       |          |                            |
|                       | AAAA      | 6,477,688       | 11/2002          | Wallace           |       |          |                            |
| ▼▼▼                   | ABBB      | 6,490,545       | 12/2002          | Peng              |       |          |                            |

|                                                                                                                                                                              |                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Examiner Signature                                                                                                                                                           | Date Considered<br><i>29 SEPT 2004</i> |
| EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |                                        |

Substitute Form PTO-1449  
(Modifed)U.S. Department of Commerce  
Patent and Trademark OfficeAttorney's Docket No.  
10559-607001Application No.  
10/054,179
**Information Disclosure Statement**  
 by Applicant  
 (Use several sheets if necessary)

(37 CFR 1.98(b))

**RECEIVED**

MAR 17 2004

2123 2628 Technology Center 2100

**U.S. Patent Documents**

| Examiner Initial | Desig. ID | Document Number | Publication Date | Patentee             | Class | Subclass | Filing Date If Appropriate |
|------------------|-----------|-----------------|------------------|----------------------|-------|----------|----------------------------|
|                  | ACCC      | 6,505,328       | 01/2003          | Van Ginneken, et al. |       |          |                            |
|                  | ADDD      | 6,516,456       | 02/2003          | Garnett, et al.      |       |          |                            |
|                  | AEEE      | 6,519,742       | 02/2003          | Falk                 |       |          |                            |
|                  | AFFF      | 6,523,156       | 02/2003          | Cirit                |       |          |                            |
|                  | AGGG      | 6,539,536       | 03/2003          | Singh et al.         |       |          |                            |
|                  | AHHH      | 6,546,528       | 04/2003          | Sasaki, et al.       |       |          |                            |
|                  | AIII      | 6,574,787       | 06/2003          | Anderson             |       |          |                            |
|                  | AJJJ      | 6,591,407       | 07/2003          | Kaufman, et al.      |       |          |                            |
|                  | AKKK      | 2002/0038447    | 03/2002          | Kim, et al.          |       |          |                            |
|                  | ALLL      | 2002/0059054    | 05/2002          | Bade, et al.         |       |          |                            |
|                  | AMMM      | 2002/0112221    | 08/2002          | Ferreri, et al.      |       |          |                            |
|                  | ANNN      | 2002/0138244    | 09/2002          | Meyer                |       |          |                            |
|                  | AOOO      | 2003/0004699    | 01/2003          | Choi, et al.         |       |          |                            |
|                  | APPP      | 2003/0036871    | 02/2003          | Fuller, et al.       |       |          |                            |
|                  | AQQQ      | 2003/0177455    | 09/2003          | Kaufman, et al.      |       |          |                            |

**Foreign Patent Documents or Published Foreign Patent Applications**

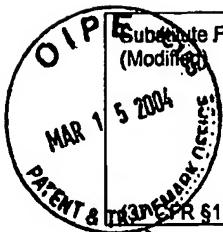
| Examiner Initial | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation<br>Yes      No |
|------------------|-----------|-----------------|------------------|--------------------------|-------|----------|----------------------------|
|                  | ARRR      | 0 404 482       | 12/1990          | EPO                      |       |          |                            |
|                  | ASSS      | 0 433 066       | 06/1991          | EPO                      |       |          |                            |
|                  | ATTT      | 0 720 233       | 07/1996          | EPO                      |       |          |                            |
|                  | AUUU      | 0 901 088       | 03/1999          | EPO                      |       |          |                            |
|                  | AVVV      | 1 065 611       | 01/2001          | EPO                      |       |          |                            |
|                  | AWWW      | 58-060559       | 04/1983          | Japan                    |       |          |                            |
|                  | AXXX      | 03-225523       | 10/1991          | Japan                    |       |          |                            |
|                  | AYYY      | 07-049890       | 02/1995          | Japan                    |       |          |                            |
|                  | AZZZ      | 08-314892       | 11/1996          | Japan                    |       |          |                            |

Examiner Signature

Date Considered

29 SEPT 2004

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



|                                                                                       |  |                                                            |  |                                       |                                               |
|---------------------------------------------------------------------------------------|--|------------------------------------------------------------|--|---------------------------------------|-----------------------------------------------|
| Substitute Form PTO-1449<br>(Modified)                                                |  | U.S. Department of Commerce<br>Patent and Trademark Office |  | Attorney's Docket No.<br>10559-607001 | Application No.<br>10/054,179                 |
| Information Disclosure Statement<br>by Applicant<br>(Use several sheets if necessary) |  | Applicant<br>William R. Wheeler et al.                     |  | Filing Date<br>January 17, 2002       | Group Art Unit<br>2123 Technology Center 2100 |

MAR 17 2004

| Foreign Patent Documents or Published Foreign Patent Applications |           |                 |                  |                          |       |          |             |    |
|-------------------------------------------------------------------|-----------|-----------------|------------------|--------------------------|-------|----------|-------------|----|
| Examiner Initial                                                  | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation |    |
|                                                                   |           |                 |                  |                          |       |          | Yes         | No |
|                                                                   | AAAAAA    | 2001-068994     | 03/2001          | Japan                    |       |          |             |    |
|                                                                   | BBBBBB    | WO 98/37475     | 08/1998          | WIPO                     |       |          |             |    |
|                                                                   | CCCCCC    | WO 98/55879     | 12/1998          | WIPO                     |       |          |             |    |
|                                                                   | DDDDDD    | WO 99/39268     | 08/1999          | WIPO                     |       |          |             |    |
|                                                                   | EEEEEE    | WO 00/65492     | 11/2000          | WIPO                     |       |          |             |    |

| Other Documents (include Author, Title, Date, and Place of Publication) |           |                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Examiner Initial                                                        | Desig. ID | Document                                                                                                                                                                                                        |
|                                                                         | AFFFFF    | Gassenfeit, E. H., "Control System Design Realization via VHDL-A: Requirements", Proceedings of the 1996 IEEE International Symposium on Computer-Aided Control System Design, September 15, 1996, pp. 282-285. |
|                                                                         | AGGGGG    | Kutzschebauch, "Efficient logic optimization using regularity extraction", Proceedings of 2000 International Conference on Computer Design, September 17, 2000, pp. 487-493.                                    |
|                                                                         | AHHHHH    | Lahti, et al., "SADE: a Graphical Tool for VHDL-Based System Analysis", 1991 IEEE International Conference on Computer-Aided Design, November 11, 1991, pp. 262-265.                                            |
|                                                                         | AIIIII    | Lin, et al., "A Goal Tree Based High-Level Test Planning System for DSP Real Number Models", 1998 Proceedings of International Test Conference, October 18, 1998, pp. 1000-1009.                                |
|                                                                         | AJJJJJ    | Maxfield, C., "Digital Logic Simulation: Event-Driven, Cycle-Based, and Home-Brewed", <i>Electrical Design News</i> , 41(14):129-136 (1996).                                                                    |
|                                                                         | AKKKKK    | NB84035598, "Binary Relational Schema to Model Structured LSI Design", IBM Technical Disclosure Bulletin, Vol. 26, No. 10B, March 1984, pp. 5598-5601.                                                          |
|                                                                         | ALLLLL    | NN7807629, "Functional Oriented Symbolic Macromodeling Algorithm", IBM Technical Disclosure Bulletin, Vol. 21, No. 2, July 1978, pp. 629-631.                                                                   |
|                                                                         | AMMMMM    | NN8006341, "Macro Physical-To-Logical Checking LSI Chip Design", IBM Technical Disclosure Bulletin, Vol. 23, No. 1, June 1980, pp. 341-345.                                                                     |
|                                                                         | ANNNNN    | NN9407481, "Functional Modeling using object Collaboration Diagram", IBM Technical Disclosure Bulletin, Vol. 37, No. 7, July 1994, pp. 481-486.                                                                 |
|                                                                         | AOOOOO    | Parlakbilek, et al., "A Multiple-Strength Multiple-Delay Compiled-Code Logic Simulator", <i>IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems</i> , 12(12):1937-1946 (1993).        |
|                                                                         | APPPPP    | Su, Stephen, "An Interactive Design Automation System", <i>Proceedings of the 10th Design Automation Workshop on Design Automation</i> , pp. 253-261, June 1973                                                 |
|                                                                         | AQQQQQ    | Yli-Pietila, et al., "The Design and Simulation of Complex Multitechnology Systems", <i>IEEE International Conference on Systems Engineering</i> , August 9, 1990, pp. 474-477.                                 |

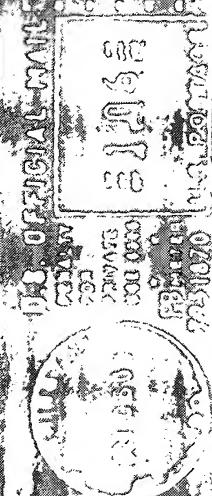
|                                                                                                                                                                              |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Examiner Signature                                                                                                                                                           | Date Considered |
| EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |                 |

RECEIVED  
U. S. DEPARTMENT OF COMMERCE

COMMISSIONER FOR PATENTS  
P. O. BOX 1450  
ALEXANDRIA, VA 22313-1450

IF UNDESERVED PRIORITY IS CLAIMED  
IN THIS APPLICATION

OFFICE OF PATENT DOCUMENTS



100-38800  
TEST

RECEIVED